

**Exemption No. 7742A**

**UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

**The Boeing Company**

for an exemption from § 25.561(b)(3)(ii) of  
Title 14, Code of Federal Aviation Regulations

**Regulatory Docket No.  
FAA-2002-11844**

**PARTIAL GRANT OF EXEMPTION**

By letter M-ABOH-02-0297 dated May 9, 2002, T. E. Hickcox, Manager, Puget Sound Certification Office, Technical Services & Modifications, The Boeing Company, P. O. Box 3707, Seattle, Washington 98124-2207, petitioned the Federal Aviation Administration (FAA) on behalf of The Boeing Company, to amend Exemption No. 7742. That exemption from the requirements of § 25.561(b)(3)(ii) of Title 14 Code of Federal Regulations (14 CFR), granted Boeing a time-limited exemption for Model 747 modification projects. The petition for amendment requests an extension to Exemption No. 7742 to include six additional specific projects to allow the modification and certification of these airplanes using a reduced center of gravity (c.g.) of the occupant for passenger seats that is used in the determination of interface loads for the § 25.561(b)(3)(ii) loading condition.

**The petitioner requests relief from the following regulation:**

**Section 25.561(b)(3)(ii)**, as amended by Amendments 25-0, 25-23, and 25-64, requires that the structure be designed to give each occupant every reasonable chance of escaping serious injury in a minor crash landing when the occupant experiences a forward 9.0 g inertia force relative to the surrounding structure.

**The petitioner's supportive information for the amendment to Exemption No. 7742 is as follows:**

**ANM-02-427-E**

“(a) Summary

“The reasons previously provided in [Boeing Letter B-H360-02-1326, ‘Requested Clarification Pertaining to the Petition for the Time Limited Exemption to 14 CFR 25.561(b)(3)(ii),’ dated February 22, 2002] remain valid for the present petition. Additional reasons are provided in the following.

“To allow continued modification, certification, and re-delivery of Model 747 Series aircraft in accordance with the design methods, currently in use on previously delivered and certified aircraft, Boeing is seeking an amendment to Exemption 7742 to add six post-production projects. Boeing is requesting this limited number of additional projects to be exempt to establish the necessary seat track/floor system design modification and Boeing proposes to reflect this new design for all Model 747 post-production airplane modifications committed to the customer after March 18, 2002. This amended exemption would allow continued re-delivery of scheduled Model 747 post-production aircraft, while the resolution of this effort between the FAA and Boeing is finalized. Boeing believes that granting this petition will not adversely affect aviation safety, and is in the best interest of the public, as it will allow continued modification and operation. This will avoid significant financial loss on the part of the airlines, which could affect existing service and business viability. Boeing also believes this is a minor change to the exemption, since only a small portion of the operating fleet is affected.”

“(c) Section of 14 CFR from which Exemption is requested

“Boeing is seeking an amendment to the existing limited exemption to Title 14 CFR 25.561(b)(3)(ii): “The occupant experiences the following ultimate inertia forces acting separately relative to the surrounding structure; Forward, 9 g.”

“(d) Extent of Relief and Reason

“Boeing is requesting an amendment to the previously granted limited exemption from the requirements of Title 14 CFR 25.561(b)(3)(ii) for the addition of six projects for Model 747 post-production modification programs. Further proprietary technical and certification details are furnished under separate cover.

“(e) Public Interest

“Boeing believes that granting this petition will not adversely affect aviation safety, as demonstrated through Model 747 fleet experience and the small size of the operating fleet affected. The proposed amendment is only a minor change to the existing exemption. This petition benefits the public by enabling Boeing and its customers to continue to provide modification of the Model 747 to allow continued operation on those routes where it is uniquely capable of performing the desired mission. Model 747 airplanes are typically delivered to customers in order to meet their high traffic demand. To satisfy this demand and allow continued economic growth continued post-delivery modification of the Model 747 is essential. Without relief, these six projects will be severely disrupted and impact the affected operator’s ability to provide capacity. Resultant delays in these six projects would likely cause additional financial hardship in light of the worldwide industry recovery in progress following the decrease in air travel as a result of the events of September 11, 2001.

“Granting this requested petition for these six projects would allow Boeing time to properly develop a retrofit design that will be financially viable for both Boeing and its customers. Otherwise significant financial losses will be incurred by Boeing and/or customer airlines, which could affect the financial viability of continued operation. Boeing Commercial Aviation Services (CAS) Technical Services and Modifications (TS&M) is also involved in the design and approval of FAA’s required intrusion resistant flight deck doors. This activity is to support the required retrofit by all U.S. operators by April 9, 2003. CAS TS&M has committed substantial technical support to achieve this objective. The resources of CAS TS&M are presently fully utilized, so that undertaking this significant retrofit design development in this time period would likely adversely affect the flight deck door activity.

“All these additional post-production projects were committed to the customer prior to March 18, 2002, (after the FAA met with Boeing and released its formal response to Boeing’s exemption request). Prior to this date, Boeing reconfiguration design substantiation reflected the original as-certified passenger CG methodology. Boeing is committed to the customer and wants to honor its commitment and minimize any adverse impact on the airline customer and ultimately the flying public.

“Most of these projects are extensions to previously approved post-production projects, and rejection of this exemption amendment request will negatively impact the airline customer fleet modernization plan.

“(f) Level of Safety Provided

“With regard to 14 CFR 25.561(b)(3)(ii), Boeing believes that the currently used passenger CG height provides an adequate level of safety of the airplane, as indicated by the grant of exemption. The level of safety will not be adversely affected because only a small portion of the operating fleet is involved....”

### **Waiver of Notice and Public Procedure**

The FAA has determined that good cause exists for waiving the requirement for Federal Register publication and comment because the amended exemption, if granted, would not set a precedent and any delay in acting on this petition would be detrimental to The Boeing Company.

### **The Federal Aviation Administration's analysis/summary of the proposed amendment to Exemption No. 7742 is as follows:**

After reviewing this petition for amendment of Exemption No. 7742, the FAA agrees with the petitioner that granting the amendment will have minimal adverse effect on aviation safety since the additional relief is for six (6) specific modification projects. These six (6) projects have been identified to the FAA by The Boeing Company, Commercial Aviation

Services. The FAA analysis/summary for the original partial grant of Exemption No. 7742 is applicable to this amendment.

Once certified, the airplanes that will be modified by these 6 projects under the provisions of this exemption are considered acceptable under § 21.21(b)(2) until such time as the seats or seating configuration is changed, to the extent that a compliance finding for § 25.561(b)(3)(ii) is necessary. At such time, compliance must be demonstrated by means of structural analysis utilizing the industry-accepted seated-occupant c.g. height.

### **The Grant of Exemption**

In consideration of the foregoing, I find that an amendment of the original partial grant of exemption No. 7742 is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. 40113 and 44701, delegated to me by the Administrator, The Boeing Company is hereby granted an amendment of Exemption No. 7742 from the requirements of 14 CFR 25.561(b)(3)(ii) for the six (6) Model 747 Commercial Aviation Services projects identified to the FAA that are currently undergoing certification. This amendment is granted to the extent necessary to allow the manufacture, certification, and re-delivery of these airplanes using a reduced c.g. of the occupant for passenger seats that is used in the determination of interface loads for the § 25.561(b)(3)(ii) loading condition, until such time as the Boeing Model 747-400XQLR is certified, or 3 years from the date of issuance of the original Partial Grant of Exemption No. 7742, March 18, 2002, whichever occurs first.

All other provisions of Exemption No. 7742, together with any associated conditions and limitations, remain the same and are applicable to this amendment. This amendment is part of, and shall be attached to, Exemption No. 7742

Issued in Renton Washington, on May 22, 2002.

/s/ Ali Bahrami

Acting Manager, Transport Airplane Directorate  
Aircraft Certification Service